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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/884,208	06/19/2001	Peter Charles Easty	450110-4271.1	5224
20999	7590	04/08/2005	EXAMINER	
FROMMERM LAWRENCE & HAUG 745 FIFTH AVENUE- 10TH FL. NEW YORK, NY 10151			PENDLETON, BRIAN T	
			ART UNIT	PAPER NUMBER
			2644	

DATE MAILED: 04/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/884,208	EASTTY ET AL.	

Examiner	Art Unit	
Brian T. Pendleton	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 14 October 2004.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-4,6 and 9-14 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-4,6 and 9-14 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 19 June 2001 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-4, 6, and 9-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Independent claims 1, 4, 12 and 13 each recite that the one bit stream is split into two bit streams, one stream having *alternate* odd data bits and the other stream having *alternate* even data bits. However, that recitation of the invention is not consistent with the specification, specifically pages 4 and 5 which state that the one-bit data stream is split into two bit streams, one stream having odd data bits and the other stream having even data bits. The addition of the word “*alternate*” changes the scope of the invention and would result in bit stream 1 containing $b_1, b_5, b_9, b_{13}, \dots$ and bit stream 2 containing $b_2, b_6, b_{10}, b_{14}, \dots$ which is a system the inventor has not proved possession of.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-4, 6, and 9-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Independent claims 1, 4, 12 and 13 each recite that the

claimed apparatus inverts data bits by splitting an one-bit signal into two bit streams and splitting the two bit streams a second time for form two channel pairs. Such language is non-functional and confusing as to how an inverter can split an one-bit signal. Thus, the claims are vague and must be re-written.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6, 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (APA) in view of Nishio et al. In the Description of the Prior Art section, Applicant admits of storing one-bit digital audio signals with available equipment (AES/EBU digital audio recorder) by multiplexing groups of bits of the one-bit audio signal into data words, specifically 4 x 16-bit words, for recording on two stereo channels, reading on a storage medium and a multiplexer. APA does not disclose inverting the one-bit digital signal on the input side and inverting the inverted signal on the output side whereby the one-bit digital signal is split into two streams, one stream being the odd data bits and the other stream being the even data bits, splitting the two streams a second time to form two channel pairs and the inverting step is accomplished by inverting one of the channel pairs (as interpreted to be the invention by the Examiner). Nishio et al taught using an idling signal in the case of a lost one-bit digital signal or when an abnormality in the transmission or reproduction of such a digital signal

occurs. The idling signal generator 53 produces the signal illustrated in figure 14D which is an alternating stream of “1”s and “0”s, which one of ordinary skill in the art knew would produce a digital silence. Thus, it was beneficial to provide an stream of alternating “1”s and “0”s in case of a transmission error in sigma-delta digital systems. There were only a finite number of techniques for producing an alternating bit stream. One method involved splitting the one-bit digital signal into a stream of the odd data bits and a stream of the even data bits and inverting one of the streams. The other technique being providing an NAND gate inputted with a “1” and the one-bit digital signal. In light of the APA, an one-bit digital signal is split into two channel pairs through multiplexing and it would have been obvious that in order to generate an alternating stream of “1”s and “0”s, as suggested by Nishio et al, one of ordinary skill in the art would have realized the claimed method of splitting the one-bit digital signal into an odd and even bit streams and splitting the streams a second time to form two channel pairs for the purpose of preventing a large magnitude one-bit digital audio signal from being reproduced by a speaker. It was well known that a transmission loss of digital audio data could occur at any time during transmission and therefore it would have been obvious to generate a bit-inverted transmitted signal which would have to be inverted on the receiving end to recover the original signal but would output silence in the event of a consecutive stream of “0”s. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have an output inverter for inverting alternate data bits of said bit-inverted signal, to regenerate said input one-bit digital signal. The APA modified by Nishio et al would include an one-bit signal split into two bit streams, one stream having odd data bits, the other stream having even data bits whereby the two bit streams are split a second time to form two channel pairs for storage on AES/EBU

digital audio recorder. Claim 1 is met. As to claims 2 and 3, the APA discloses data words of 16 bits for an AES/EBU digital audio recorder. Regarding claim 4, it would have been obvious to one of ordinary skill in the art at the time of invention to invert a subset of alternate data bits as long as the subset was longer than a predetermined continuous fixed value (abnormality) time period. Per claim 6, it was obvious to have an output inverter and a demultiplexer on the receiving end to complement an input inverter and multiplexer on the transmission end. Per claim 11, APA teaches that in the event of a reproduction problem, the storage medium outputs a mute signal. As to claims 12 and 13, the combination meets the limitations. Per claim 14, APA discloses a one-bit digital audio signal.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Nishio et al as applied to claim 1 above, and further in view of Redfern & Co., GB 1 329 883. The combination of the admitted prior art and Nishio does not disclose means for providing an inversion control signal having a signal state varying between two predetermined states and logic to selectively invert data bits of the input one-bit digital signal in response to the inversion control signal. However, it was well known that several bit sequences can be used to generate a digital silence signal which would motivate one of ordinary skill in the art to provide a system for inverting certain bits while not inverting certain bits. Redfern & Co. disclosed a pseudo-random sequence that can be generated with a feedback shift register. Such a sequence provides an inversion control signal and control logic, per claim 9, and comprises a shift register having a one-bit output fed back to the input of the shift register and an exclusive OR gate operable to combine a current bit output by said shift register with a current bit of the input one-bit digital signal. It would have been obvious to one of ordinary skill in the art at the time of invention to

use the circuitry of Redfern & Co. for the purpose of generating a random bit sequence for silence.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. Pendleton whose telephone number is (571) 272-7527. The examiner can normally be reached on M-F 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571) 272-7564. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brian T. Pendleton
Examiner
Art Unit 2644

btp

